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2020-08

Kaltiainen , J , Lipponen , J , Fugate , M & Vakola , M 2020 , ' Spiraling work engagement and change appraisals : A three-wave longitudinal study during organizational change ' , Journal of Occupational Health Psychology , vol. 25 , no. 4 , pp. 244-258 . https://doi.org/10.1037/ocp0000163

http://hdl.handle.net/10138/318899
https://doi.org/10.1037/ocp0000163

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Spiraling Work Engagement and Change Appraisals: A Three-Wave Longitudinal Study During Organizational Change

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Early versions of this article were presented at 2017 European Association of Work and Organizational Psychology conference and 2018 Society for Industrial and Organizational

Psychology conference. Summary of the main findings of this study have been presented in the first author's Ph.D. thesis. One published manuscript has utilized the same data set, Kaltiainen, J., Lipponen, J., & Holtz, B. C. (2017). Dynamic interplay between merger process justice and cognitive trust in top management: A longitudinal study. *Journal of Applied Psychology*, 102(4), 636-647. doi:10.1037/apl0000180. This research was supported by the Finnish Work Environment Fund (grants 115306 and 113090), City of Helsinki, Oskar Öflund Foundation, and Marcus Wallenberg Foundation. We thank Marko Hakonen and Olli-Jaakko Kupiainen for their central role in the research project, and Jari Hakanen and Matthias Aulbach for their feedback regarding the manuscript.

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Significant organizational changes pose a substantial threat for employees' well-being and psychological health. Accordingly, research has shown that change endeavors, such as mergers and acquisitions, are often associated with stress, negative emotions, threat, uncertainty, and reduced well-being and motivation among employees (e.g., Edwards, Lipponen, Edwards, & Hakonen, 2017; Fugate, Kinicki, & Scheck, 2002; Kiefer, 2005; Oreg, Michel, & By, 2013; Oreg, Vakola, & Armenakis, 2011). For employees' well-being and the success of organizational changes, it is therefore vital to understand the determinants of employees reactions and how such reactions evolve during change events (e.g., Armenakis & Bedeian, 1999; Edwards et al., 2017; Pettigrew, Woodman, & Cameron, 2001). One such crucial determinant is whether employees are and stay engaged with their work during demanding events (Teerikangas & Välikangas, 2015). Work engagement is defined as a positive affective-motivational state characterized by experiences of vigor, dedication, and absorption in one's work (Schaufeli, Salanova, González-romá, & Bakker, 2002) and thus represents a form of employee well-being that is high in activation (Hakanen, Peeters, & Schaufeli, 2018). Although little research investigates work engagement in the context of organizational change (e.g., Petrou, Demerouti, & Schaufeli, 2018), research in other contexts shows work engagement to be a significant predictor of numerous important outcomes, such as employees' performance, organizational commitment, and well-being (Bailey, Madden, Alfes, & Fletcher, 2017; Christian, Garza, & Slaughter, 2011; Halbesleben, 2010). It thus is reasonable also to expect work engagement benefits as change initiatives unfold. We test this supposition in the current paper.

Broaden-and-build theory (Fredrickson, 1998, 2001) is used to support our argument that as work engagement (i.e., positivity experienced in work) builds throughout a merger, it also broadens employees' change-related cognitive appraisals by fostering positive appraisals, and protects against adverse reactions as it mitigates negative appraisals (Fugate, 2013). Change-related appraisals represent cognitive process by which employees ascribe meaning to

organizational changes, such as whether a change is positive for them personally and provides potential future benefits (challenge appraisal), or whether the change is negative and may generate potential future losses (threat appraisal; Fugate & Soenen, 2018; Rafferty & Restubog, 2017). Challenge appraisal reflects one's confidence to prevail in the face of demands, while threat appraisal is characterized by low expectations regarding one's future adjustment (Lazarus & Folkman, 1984). Change appraisals are crucial antecedents and mediating processes that predict numerous essential outcomes, such as emotions (Bardi, Guerra, & Ramdeny, 2009), support and commitment to change (Fugate & Soenen, 2018; Herold, Fedor, & Caldwell, 2007), and voluntary turnover (Fugate, Prussia, & Kinicki, 2012; Rafferty & Restubog, 2017). Notably, when organizational change is perceived as a positive challenge, change events may have a positive impact on psychological health (Avey, Wernsing, & Luthans, 2008).

Considered together, it is likely that work engagement and change appraisals spiral, via reciprocal and reinforcing relationships, during an unfolding organizational change event. To this end, we investigate two dynamic process-models that show work engagement and change-related appraisals are both antecedents and outcomes of each other during a merger, wherein work engagement fosters changes in cognitive appraisals which enhance subsequent changes in work engagement. Spirals refer to sustained and systematic changes, or trajectories, in a given phenomenon across time (Lindsley, Brass, & Thomas, 1995), such that cognitive appraisals predict changes in engagement, which foster subsequent changes in cognitive appraisals, resulting in spiraling episodes of threat and challenge (see Figure 1). Our aim is not only to enhance our understanding of employees' work engagement and change appraisals, but also to increase the effectiveness of our guidance to managers of change. In so doing, the current study makes several contributions to theory, research, and practice.

First, by simultaneously examining both negative (threat) and positive (challenge) event-specific cognitions, we extend the notion in Fredrickson's (1998) broaden-and-build theory of positivity broadening individual's cognitions. Here we draw from change appraisal research which has shown employees to evaluate organizational changes as both positive and negative simultaneously (Fugate, 2013; see also Lazarus & Folkman, 1984). By examining whether the accumulation of work engagement is more likely to occur via engagement hindering negative or fostering positive cognitions, we extend existing broaden-and-build and work engagement research that has largely focused on examining positive cognitions (e.g., finding positive personal meaning, optimism, hope; Bailey et al., 2017; Fredrickson, Tugade, Waugh, & Larkin, 2003; Kiken & Fredrickson, 2017), thus sidelining negative cognitions. This similarly extends research pertaining to employees' reactions to change, as this work has focused disproportionately on negative reactions to change, such as threat, turnover, and negative emotions (for rare exceptions, see Fugate & Soenen, 2018; Rafferty & Restubog, 2017). Our findings elucidate whether enhancing positive or hindering negative appraisals might be more important for increasing work engagement during change events, and if the positive effects of engagement are best understood as enhancing positive or counteracting negative appraisals.

Second, our study across distinct phases of a change event (i.e., a merger) may reveal differences in the reciprocal relationships between engagement and change appraisals throughout pre- and post-change phases characterized by differing amounts of contextual changes. In so doing, our longitudinal investigation does not only provide a new and important test of the broaden-and-build theory in the context of organizational change (Vacharkulksemsuk & Fredrickson, 2013), but we outline multiple time points and targets—cognitive appraisals and work engagement—for interventions to improve employee reactions to change. Furthermore, substantiating engagement as a predictor and as an outcome of change-related cognitions expands its explanatory power, if not also its nomological net, and thus contributes to theory and

research on the topic (Van den Heuvel, Demerouti, Schaufeli, & Bakker, 2010). Our test shows whether positive experiences at work (engagement) and future-related cognitions (challenge) early in a merger have continuing benefits and accumulate via reciprocal relationships.

Finally, our analytical approach of within-person processes (i.e., change trajectories; McArdle, 2009) captures the evolution of employees' change experiences. Despite acknowledging the variegated and dynamic experience of organizational change wherein employee reactions evolve as changes unfold (Fugate et al., 2002; Jansen, Shipp, & Michael, 2016; Sung et al., 2017), studies have rarely addressed the determinants and consequences of within-person changes in employee reactions. Oversimplifying the true complexity of employee experience potentially diminishes or even undermines our ability to understand and effectively guide organizational change initiatives. Our investigation, for instance, may reveal not only the importance of work engagement and positive appraisals at the outset of change but also the benefits of cultivating such experiences during the process. We therefore argue it is not only important to understand employees' levels (i.e., absolute scores at a specific time point) of engagement during change, but it also is valuable to understand how engagement changes, as this highlights yet another and essential determinant and consequence of cognitions (Hobfoll, 2011; Van den Heuvel et al., 2010). Relatedly, our within-person approach provides a more informative attempt to test spiraling processes, such as positivity fostering cognitive changes within an individual, which then cultivate subsequent changes in positivity (Fredrickson, 2001; see also Chen, Ployhart, Thomas, Anderson, & Bliese, 2011; Halbesleben & Wheeler, 2015).

Spiraling Work Engagement Through Initiating Changes in Change Appraisals

The broaden-and-build theory posits that positivity broadens people's cognitions, thought-action repertoires, and modes of thinking ("the broaden effect"; Fredrickson, 2001; see also Ashby, Isen, & Turken, 1999; Aspinwall, 1998). Examples of such beneficial effects are positivity fostering creativity, generation of new action ideas and greater perspective-taking,

as well as a tendency to immerse oneself in novel situations and ascribe positive personal meaning in demanding events (Fredrickson, 2000, 2001, 2013; Fredrickson & Joiner, 2002). These same types of benefits are valuable for employees and employers alike during a merger, such as perceiving events in a positive manner (Lyubomirsky, 2001), potential gains (Bartunek, Rousseau, Rudolph, & DePalma, 2006) and problems as solvable (Chang, 2017).

Positivity also builds subsequent well-being and positivity. This implies that by initiating changes in cognitions, positivity begets further positivity over time as the broadened cognitions feedback to subsequent well-being (e.g., Fredrickson & Joiner, 2002). Similarly, positive cognitions today can have lasting effects by fostering subsequent positivity and over time create upward spirals or "positive trajectories of growth" (Fredrickson, 2013, p. 24). Related research suggests that as work engagement represents positivity at work, (e.g., positive affective and motivational state), work engagement and positive cognitions produce adaptational benefits that accumulate during organizational changes through reciprocal reinforcing relationships (Salanova, Schaufeli, Xanthopoulou, & Bakker, 2010; Van den Heuvel et al., 2010). Hobfoll made a very poignant and succinct statement that we believe captures the essence of our own argument: "it is engagement that may keep people 'in the game'" (2011, p. 132).

Existing research has provided empirical support for reciprocal associations between work engagement and a number of constructs over time, such as active coping style (Weigl et al., 2010), personal initiative (Hakanen, Perhoniemi, & Toppinen-Tanner, 2008), efficacy-beliefs (Llorens, Schaufeli, Bakker, & Salanova, 2007) and hope and optimism (Reis, Hoppe, & Schröder, 2015; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). Although this research has provided notable contributions, our understanding is limited regarding work engagement's potential benefits for employees' reactions during organizational changes. Such benefits may include associations with within-person changes in event-specific cognitive appraisals that are expected to be the key determinants for employees' adjustment and well-being in demanding

environments (Fugate, 2013; Lazarus & Folkman, 1984). As we study employees' subjective event appraisals, we go beyond other work engagement studies that have investigated employee psychological predispositions that reflect individuals' general beliefs (e.g., optimism; Barbier, Hansez, Chmiel, & Demerouti, 2013), or specific *characteristics* of work, such as job resources or stressors (e.g., Tadić, Bakker, & Oerlemans, 2015). Notably, recent studies have found appraisals to be essential for untangling the effects from job-related demands to various outcomes, such as job satisfaction (Searle & Auton, 2015; Webster, Beehr, & Love, 2011).

Applied to the context of a merger and the current study, this literature suggests spiraling processes wherein being engaged with one's work (i.e., experiencing high levels of energy, motivation, happiness, pride, and enthusiasm while working; Schaufeli, Bakker, & Salanova, 2006) at the outset of a merger, and experiencing increases in work engagement as the merger unfolds, facilitates more open, active, accepting, and positive perspectives regarding organizational changes, such as challenge appraisals. This broadening effect builds future positivity in the form of cultivating increases in work engagement. Therefore, we predict:

Hypothesis 1a: *Prior high (/low) work engagement, and increases (/decreases) in work engagement, are related to increases (/decreases) in challenge appraisal during Time 1–Time 2.* ***(H1b)*** *During Time 2–Time 3, prior high (/low) challenge and increases (/decreases) in challenge, are related to increases (/decreases) in work engagement.*

An additional benefit postulated in the broaden-and-build theory is that positivity helps to mitigate or prevent adverse reactions (Fredrickson, Mancuso, Branigan, & Tugade, 2000). This protective effect is supported by volumes of existing research, such as positive affect and coping (Folkman & Moskowitz, 2000), buffering against stress and its negative consequences (Blevins, Sagui, & Bennett, 2017; Pressman & Cohen, 2005), and depression (Fredrickson et al., 2003; Riskind, Kleiman, & Schafer, 2013). Positivity buffering against adverse reactions should be particularly beneficial in the context of change, given that threat perceptions are

associated with narrower or limited cognitions and behavioral reactions, which reduce subsequent motivation and positive affect (Lazarus & Folkman, 1984; Staw, Sandelands, & Dutton, 1981; Tomaka, Blascovich, Kelsey, & Leitten, 1993), such as work engagement. Put differently, those who appraise the change as a threat are more likely to focus on self-protection and act and feel in a way that limits possibilities rather than find the joy, happiness, pride, and enthusiasm in their work. Taken together, increasing positive and reducing negative reactions to change provides a new and important test of the broaden-and-build theory in the context of organizational change (Vacharkulksemsuk & Fredrickson, 2013). We thus hypothesize:

Hypothesis 2a: *Prior high (/low) work engagement, and increases (/decreases) in work engagement, are related to decreases (/increases) in threat appraisal during Time 1–Time 2.*

(H2b) *During Time 2–Time 3, prior low (/high) threat, and decreases (/increases) in threat, are related to increases (/decreases) in work engagement.*

Spiraling Change Appraisals Through Initiating Changes in Work Engagement

Drawing from the same research as described above, we posit spirals of cognitive appraisals wherein challenge and threat appraisals feedback to subsequent appraisals by initiating changes in work engagement. Specifically, we posit that initial challenge appraisal and increases in challenge foster work engagement, which then increase challenge appraisals later in the merger process. Thus, we predict:

Hypothesis 3a: *Prior high (/low) challenge appraisal, and increases (/decreases) in challenge, are related to increases (/decreases) in work engagement during Time 1–Time 2.*

(H3b) *During Time 2–Time 3, prior high (/low) work engagement, and increases (/decreases) in work engagement, are related to increases (/decreases) in challenge.*

Conversely for negative threat appraisals, we expect initial threat appraisal and increases in threat to hinder work engagement, which consequently leads to increases in threat appraisals. We therefore hypothesize:

Hypothesis 4a: *Prior high (/low) threat appraisal, and increases (/decreases) in threat, are related to decreases (/increases) in work engagement during Time 1–Time 2.* ***(H4b)*** *During Time 2–Time 3, prior low (/high) work engagement, and decreases (/increases) in work engagement, are related to increases (/decreases) in threat.*

METHOD

Sample and Procedure

This study examined a merger of two municipal organizations of Social and Health Care Services in Finland over two years. The merger aimed at retaining the services of both pre-merger organizations and the merged organization was comprised near equally of employees from both pre-merger organizations, 54% from Social Services and 46% from Health Care.

We administrated three online surveys with a one-year lag between (see Figure 2 for the timeline and change-related details). The one-year time lag was chosen as it coincided with the completion of the major change initiatives and provided sufficient time for the occurrence of changes in the focal constructs (e.g., Seppälä et al., 2015).

The population size was roughly 15,000 during our study. About 25% of the population (N = 3679) responded at Time 1. Of those, 1181 (32%) participated at Time 2. Finally, 623 (53%) of those participated at Time 3, which represents the utilized sample. Analyses did not indicate that attrition would have affected the findings (see Appendix A). Mean age was 47.5 years and the majority had an equivalent of a bachelor's degree or higher (57%) and were female (88%). Most held an employee-level position (76%), others were supervisors (17%) or management (7%). The data used in this study were collected as part of a larger study with permissions from the participating organizations.

Before the first survey, employees knew that a merger would occur, but no job-specific plans or changes were known. However, employees were informed that layoffs would not oc-

cur. The Time 2 survey was after implementation of major merger-related changes for employees, such as combining eleven divisions from pre-merge organizations into six divisions. We administrated the third survey later in the merger process in which more minor changes occurred (for more detailed contextual information, see Figure 2).

Measures

All constructs presented high internal consistency (alpha reliabilities above .70; Table 1). For a full list of items and scales of the focal constructs, see Appendix B.

Hypothesized constructs. For measuring *work engagement*, we used a 9-item version of the Utrecht Work Engagement Scale tapping into vigor, dedication, and absorption dimensions (Schaufeli et al., 2006). *Threat and challenge appraisals* (i.e., change appraisals) were both measured with three items adapted from Bardi et al. (2009).[1]

Control variables. We controlled for the perceived favorability of the occurred changes for participant's own work (*the changes have been* 1 = *mostly negative*, …, 7 = *mostly positive*) at Time 2 and Time 3 as the favorability of the occurred changes may influence one's future-related appraisals (Lazarus & Folkman, 1984). Additionally, we controlled for pre-merger organization as the experience of a merger can depend on one's pre-merger organization (Giessner, Ullrich, & Van Dick, 2012), gender as it may influence appraisals (e.g., Matud, 2004), and tenure because one's relationship with the organization can have an impact on appraisals of organizational change (Lazarus & Folkman, 1984). The inclusion of the control variables did not influence the main conclusions of the study (see supplemental materials).

Analysis

We tested our hypotheses by using multivariate second-order latent change score modeling (2LCSM; Ferrer, Balluerka, & Widaman, 2008; McArdle & Hamagami, 2001). Analyses were conducted using Mplus version 7.2 and models were estimated using the maximum likelihood estimation with robust standard errors as it is robust to non-normality (Muthén &

Muthén, 2012), which was present in some of the work engagement indicators. Covariances among the items' residuals over time were estimated as recommended for longitudinal structural equation modeling (e.g., Little, 2013; Ployhart & Vandenberg, 2010). Model comparison analyses were conducted by using Satorra-Bentler chi-square difference test (Satorra & Bentler, 2001). Control variables were regressed on all latent change scores.

We apply LCSM as it enables us to examine relationships among within-person changes, which is in contrast to cross-lagged panel models that do not separate within-person processes from between-person differences (Hamaker, Kuiper, & Grasman, 2015). Second, in LCSM the change score spans over one time interval enabling us to test the notion that prior changes are expressed in subsequent changes (McArdle, 2009; Selig & Preacher, 2009). This contrasts with growth curve modeling, which can be used to examine changes across three or more time points, but not across two time points. As we examine the same constructs as both antecedents and outcomes, this renders growth modeling unsuitable for our purposes. Furthermore, In LCSM there is no need to subtract two scores from each other to create a difference score or model residual changes, which do not map well with within-person processes and are associated with methodological problems (Henk & Castro-Schilo, 2016). LCSM enables us to examine dynamic processes, in which work engagement and cognitive appraisals are expected to foster each other and impact subsequent changes in each other.

RESULTS

Preliminary Analyses

Table 1 contains descriptive statistics. Confirmatory factor analyses supported the hypothesized three-factor model of threat, challenge, and work engagement as it resulted in good model fit: $\chi^2(855) = 1603.96$, $p < .001$, Comparative Fit Index = .96, Tucker-Lewis Fit Index =

.96, Root Mean Square Error of Approximation = .04, Standardized Root Mean Square Residual = .05.[2] Item loadings are presented in Table 2. In the factor model, we estimated error covariances between three item pairs of the engagement construct (see supplemental materials).

Next, we tested for the over time measurement invariance of the three-factor model (Table 3). By establishing measurement invariance, we ensure that the possible changes in the latent constructs over time are not because the same measurements would have been interpreted differently at different time points (Little, 2013; Vandenberg & Lance, 2000). As shown in Table 3, we were able to establish partial strong invariance (i.e., equal factor loadings and item intercepts) by estimating the item intercepts of threat item 1 and challenge item 2 at Time 3 freely. As the model presented sufficient indication of measurement invariance over time (Byrne, 2012; Little, 2013), we proceeded to examine the latent change constructs.

The means of the change scores (Table 4) suggest that on average, threat increased, and challenge appraisals and engagement decreased during the first merger year (Time 1-Time 2). During the second year (Time 2-Time 3), there were no statistically significant overall changes on average. The standard deviations supported moving to examine the antecedents of the found between-person variability in the within-person changes (Henk & Castro-Schilo, 2016).

Hypothesis Testing

We tested our hypotheses in two latent change score models. In the first model, we tested spirals of work engagement (Hypotheses 1 and 2; Figure 3a) and in the second model spirals of challenge and threat appraisals (Hypotheses 3 and 4; Figure 3b). We conducted the analyses in two models because estimating both dynamic processes (i.e., spirals of work engagement and cognitive appraisals) in a single model was not possible because in such a model the number of explanatory variables for each outcome variable would not have been equal or smaller than the number of exogenous variables. This order condition for non-recursive models is a requisite for identifying reciprocal models (Bollen, 1989; Kline, 2006).

Concerning work engagement spirals (Hypotheses 1 and 2), the model showed that work engagement at Time 1 and changes from Time 1 to Time 2 were positively related to changes in challenge from Time 1 to Time 2 (see Figure 3a). Thus, employees who had higher initial work engagement, and subsequent increases, tended to have more increases on challenge appraisals. The found positive relationship also indicated that lower initial engagement and decreases in engagement were related to decreases in challenge. This provided support for Hypothesis 1a. However, paths from challenge appraisal at Time 2 and changes from Time 2 to Time 3 to work engagement changes from Time 2 to Time 3 were not statistically significant. Thus, Hypothesis 1b was not supported. Hypotheses 2a and 2b received support as work engagement and changes in engagement were negatively related to threat appraisal changes from Time 1 to Time 2 (H2a), and from Time 2 to Time 3 we found a negative relationship from threat and changes in threat to work engagement changes (H2b; see Figure 3a). This suggested that employees who had higher Time 1 levels of work engagement and subsequent increases, tended to have less increases on threat appraisal from Time 1 to Time 2. Furthermore, the lower an employees' threat appraisal was at Time 2, and the more it decreased, the more one's work engagement increased from Time 2 to Time 3. The found negative relationship also signified that low engagement and decreases in engagement were related to increases in threat, and high threat and increases in threat were related to decreases in work engagement.

In the second model, we tested spirals of challenge and threat appraisals (Hypotheses 3 and 4). As shown in Figure 3b, challenge appraisal and changes in challenge were positively related to work engagement changes from Time 1 to Time 2 (H3a), and from Time 2 to Time 3 work engagement and changes in engagement were positively related to challenge appraisal changes (H3b). These findings provided support for Hypotheses 3a and 3b. Therefore, employees who had higher initial levels of challenge appraisals, and subsequent increases, tended to

have more increases in work engagement. During the subsequent merger phase, the more employees were engaged in their work at Time 2, and the more work engagement increased, the more challenge appraisal increased from Time 2 to Time 3. Finally, Hypotheses 4a and 4b were supported as the results showed that threat appraisal and changes in threat were negatively related to work engagement changes from Time 1 to Time 2 (H4a), and subsequent work engagement and changes in engagement were negatively related to threat appraisal changes from Time 2 to Time 3 (H4b; see Figure 3b). Put differently, those with high initial threat and who experiences increases in threat tended to show more decreases in work engagement. Furthermore, the lower an employee's work engagement was at Time 2 and the more it decreased, the more one's threat appraisal increased from Time 2 to Time 3.[3]

DISCUSSION

Since significant organizational change endeavors bear a risk for employees' psychological health and well-being, it is essential to understand how and why employee reactions and experiences evolve over time within individuals. Therefore, the primary aim of this study was to illuminate the dynamics between two key factors in employees' reactions to organizational change: work engagement and cognitive appraisals of change. To achieve this, we examined spirals of work engagement and cognitive appraisals. As hypothesized, work engagement and increases in engagement were found to be reciprocally associated with threat appraisal and decreases in threat throughout the examined two years of the organizational merger, and across the first merger year (Time 1-Time 2) reciprocally associated with challenge appraisal and increases in challenge. However, during the second merger year (Time 2-Time 3), work engagement and increases in engagement were found to be related to challenge appraisal and increases in challenge, but similar relationships from challenge to work engagement were not found. These findings have valuable implications for theory, research, and practice.

Broadening the Cognitive Underpinning of the Broaden-and-Build Effect

To further our understanding of the cognitive underpinning of the *build effect* of positivity, as postulated in Fredrickson's (2001) broaden-and-build theory, we examined simultaneously positive *and* negative cognitive event-related appraisals. Here we drew from the literature on change appraisals, wherein examining both positive and negative cognitions is a central, yet empirically rarely addressed, tenet (e.g., Fugate, 2013; see also Lazarus & Folkman, 1984). Coupling these two perspectives extends and challenges existing broaden-and-build and work engagement research that has sidelined negative cognitions as it has focused on how positivity (e.g., engagement) is associated with positive cognitive constructs (e.g., Kiken & Fredrickson, 2017; Salanova et al., 2010). This means less is known how work engagement or similar positive states may ameliorate negative cognitive reactions or how negative cognitions hinder engagement and how these processes carry-over and cascade over time.

Interestingly, our findings suggest that the protective quality of positivity (engagement) against negative cognitions (threat) may be a more suitable explanation for the accumulation of work engagement during organizational changes in comparison to positivity promoting positive cognitions (challenge). This is because we found that engagement mitigated threat and fostered challenge during Time 1 and Time 2 (H1a, H2a), and lower threat in turn fostered further engagement across Time 2 and Time 3 (H2b) whereas similar relationships from challenge to engagement were not found (H1b).[4] Although Fredrickson and colleagues contend that "finding positive meaning may be the most powerful leverage point for cultivating positive emotions during crisis" (2003, p. 374), our findings suggest that helping employees not to ascribe *negative* personal meaning to change events may be even more important for fostering their work-related positivity during organizational changes.

The finding of threat being a stronger predictor of engagement than challenge appraisal aligns with the notions that negative event perceptions have stronger effects than positive

(Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Rozin & Royzman, 2001). These propositions have received support in the few related studies showing negative appraisals to be a more robust predictor of emotions (Skinner & Brewer, 2002) and job dissatisfaction and turnover intentions (Webster et al., 2011). However, studies have also found challenge to be more strongly related to positive outcomes (e.g., positive affect; life satisfaction) while negative appraisals have predicted negative outcomes (e.g., negative affect, anger, anxiety; Bardi et al., 2009; Searle & Auton, 2015).

As this study appears to be the first study to examine negative and positive event-appraisals simultaneously as predictors across different phases of a demanding event (see Figure 2), our study illuminates a potential condition for the beneficial effects of positive expectations. Our results suggest that the role of positive change appraisals (challenge) for employees affective-motivational states (work engagement) may be more accentuated during major changes (i.e., during the first year of the merger; Time 1-Time 2) in comparison to a time with more minor changes (i.e., the second merger year; Time 2-Time 3). This aligns with Hobfoll's (1989) notion of positive expectations being especially important during uncertain times.

These findings imply that to maintain and even increase work engagement during organizational changes, managers are well served to enhance positive and mitigate negative appraisals. Our results, however, suggest that during less turbulent times it may be more important to combat employees' threat appraisals (e.g., emphasize lack of negative outcomes), wherein during major changes, it is equally important to cultivate positive outlooks towards the change (e.g., emphasize beneficial short- and long-term outcomes, highlight positive aspects of change for individuals). Doing one or the other is suboptimal both practically and academically, as such approaches fail to capture the complexity and dynamism of employees' change-related experiences and reactions. Our findings emphasize the importance for managers to intervene

proactively early on and even prior to significant change events, as fostering challenge appraisals and work engagement, and mitigating threat pays dividends later in the change process.

Studies have shown that to promote challenge and mitigate negative appraisals, and thus foster work engagement during change events, it is essential that change managers lead in a fair (e.g., respectful treatment, participatory decision-making, consistent procedures over time and people; timely information) and trustworthy (e.g., be qualified, want and do good for others, actions are guided by commonly accepted principles and values) manner (Fugate, 2013; Fugate & Soenen, 2018; Kaltiainen, Lipponen, & Petrou, 2018; Mishra & Spreitzer, 1998). As positivity is contagious, change managers that express their enthusiasm, inspiration, and proudness of their work, are likely to foster similar positivity, such as work engagement, amongst employees (Avey, Avolio, & Luthans, 2011). In addition, training that enhances employees' efficacy beliefs is likely to mitigate threat and enhance challenge appraisals and thus foster engagement (Oreg et al., 2011; Van den Heuvel et al., 2010).

Work Engagement Both as an Outcome and Antecedent of Cognitive Change Reactions

For the first time, we show that engagement is not only an outcome but also an antecedent of employees' change reactions. Our findings suggest that engagement is not only fostered by challenge and hindered by threat appraisals, but also that engagement is both a positive reaction enhancer and negative reaction mitigator. This reinforces the proposition of engagement having beneficial effects during demanding events (Hobfoll, 2011; Van den Heuvel et al., 2010). We go beyond prior longitudinal work engagement studies conducted during organizational changes as they have solely examined engagement as an outcome (Petrou, Demerouti, & Häfner, 2015; Petrou, Demerouti, Peeters, Schaufeli, & Hetland, 2012; Petrou et al., 2018).

This finding suggests that focusing solely on one direction of the presumed cause-and-effect relationship can lead to incomplete and even potentially erroneous evidence and conclusions. For instance, our results suggest that it would be inaccurate to assume that employees'

work engagement is only an outcome of change-related appraisals. This assumption would lead both researchers and managers to focus only on study designs and interventions that help employees to appraise the change event in positive terms and measure engagement only after measuring cognitive appraisals in longitudinal study designs, which may result in limited knowledge. We therefore encourage researchers to expand their theorizing and testing by examining engagement in other roles and explore other benefits for organizational change and other contexts. Similar benefits accrue to practitioners. Managers are well-served to cultivate employees' work engagement before and during change events, not only because work engagement is related to performance (e.g., Christian et al., 2011), but also as it may help employees to adjust by mitigating negative and fostering positive perceptions of changes.

For change researchers, our findings indicate that unidirectional models, as postulated and tested in vast majority of change research, may fail to capture the true dynamic and complex nature of the change-related psychological processes (Mack et al., 1998; Oreg et al., 2011). We therefore encourage researchers to consider such reciprocal relationships in their designs and analyses (e.g., measuring the same constructs at several time points; Farrell, 1994).

As this is the first study to examine and show the link between work engagement and change appraisals, we also contribute to research that has found engagement to be positively and reciprocally associated with hope and optimism. Whereas Barbier et al. (2013) did not find a relationship from engagement to optimism, in this study we found engagement to be related to increases in challenge. As the study by Barbier et al. (2013) was not conducted during organizational change, it may be that the benefits of engagement on cognitions are more likely found during demanding events, such as examined in our study. Furthermore, our results suggest that work engagement benefits as it mitigates negative and fosters positive event-specific appraisals which may be more malleable in comparison to psychological predispositions, such as hope and optimism (Folkman & Lazarus, 1985; Lazarus & Folkman, 1984).

The Role of Within-Person Change Trajectories

Our results revealed that the within-person changes in the antecedents were notable predictors of changes in the outcome variables. This is especially so for work engagement, as changes in engagement were more robust predictors of changes in the threat and challenge than the prior levels of the engagement.[5] For managers of change, our results show that not only does work engagement matter at the outset of a merger, but that preserving (or even enhancing) engagement during the change process is especially important for how employees' positive and negative future-related expectations evolve during the change process. In other words, while low work engagement poses a risk, cultivating engagement can act as a remedy. Similarly, fostering decreases in threat and increases in challenge is as important for employee's work engagement as are the levels of challenge and threat at a particular point during a merger.

For future researchers, it is worth noting that our findings could not have been discovered via cross-sectional nor longitudinal designs that do not examine within-person changes. Such studies do not capture how avoiding negative reactions may lead to *increases* in motivation over time, nor the benefits of *reducing* negative reactions over time within individuals. Although examination of within-person change trajectories has attracted increased attention in the organizational change literature (e.g., Edwards et al., 2017; Jansen et al., 2016; Petrou et al., 2018; Sung et al., 2017), a clear majority of existing change research still seeks to understand individual experiences by examining solely between-person differences. Analytical approaches that do not segregate within-person changes from between-person differences often do not map well with the theoretical processes that they are utilized to test and may yield results that are difficult to interpret in a meaningful way (e.g., Berry & Willoughby, 2017).

Limitations and Future Research

Naturally, our findings should be interpreted in light of the study's limitations. First, like many field studies of organizational change, we did not conduct an experimental study and

thus are able to provide only limited evidence regarding causal effects. However, in this study we tested longitudinal relationships, segregated within-person changes from between-person differences, and established measurement invariance over time, which increases our confidence regarding causal inferences (Ferrer et al., 2008; Hamaker et al., 2015; Usami, Hayes, & McArdle, 2016). However, as there was no temporal separation between the examined latent change scores, causal inferences regarding these relationships are more limited. Nevertheless, examination of relationships between simultaneous change processes has been proposed for theory operationalization (e.g., Cheong, MacKinnon, & Khoo, 2003; Henk & Castro-Schilo, 2016) and is in line with existing practices (e.g., McArdle & Prindle, 2008; Petrou et al., 2018).

Second, like in other self-report survey research, risk of common method bias existed. While the significance of common method bias has been debated (Spector, 2006), we combated these issues via temporal and contextual separation of measures (i.e., a longitudinal design across different contextual circumstances) and emphasized respondents' anonymity in survey instructions and calls to participate (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Importantly, the focal constructs of our study (employees' experience of work engagement and cognitive appraisals) necessitate the use of self-report measures.

Third, the three-wave sample represented a relatively small amount of the population in the merging organizations. While analyses did not indicate that the attrition would have affected the main conclusions of the study (see Appendix A), the low response rate limits the generalization of the findings. Nevertheless, our sample represents a strength considering the challenges (e.g., organizational access, employee attrition) associated with obtaining sufficient longitudinal data during significant change events (Cartwright & Schoenberg, 2006).

We encourage future researchers to conduct studies with more waves of data and shorter time lags, as this could allow for examining greater dynamism and the pace of within-person changes (e.g., Ployhart & Vandenberg, 2010). Shorter time lags could also produce stronger

relationships as they are less vulnerable to interim effects. Additionally, organizations where our study took place guaranteed secure employment, and this may have an impact on change recipients' cognitive appraisals. However, whereas de Jong et al. (2016) concluded that the impact of organizational restructuring did not depend on whether there were change-related staff reductions or not, Vakola (2016) found that the perceived personal impact of change influenced employees' positive and negative initial reactions to change.

As we found that the relationship from threat and challenge appraisals to engagement differed, future researchers are encouraged to reconsider the conceptual foundations of appraisals of change. For instance, and as noted above, research has established that people perceive and react differently to potential losses versus gains, yet it seems that cognitive appraisal researchers have not included this in their theorizing and operationalization of these constructs. It may be that employees have different foci for losses (e.g., money, opportunities, friendships) and gains (e.g., responsibilities and challenging work). Future research could also explore whether the effects of negative and positive appraisals differ in their duration, such as whether threat has more long-lasting effects than challenge. This could help explain our (non)findings while also guide managers to be especially focused on mitigating negative appraisals.

In this study, we focused on employees' expectations (i.e., threat and challenge). We encourage scholars to examine how the realization of expectations, or discordance between expectations and outcomes, influences reactions. Studies could investigate a joint effect of pre-event expectations and subsequent appraisals of occurred harms (Lazarus & Folkman, 1984). Finally, we see that future research would also benefit from following work that has disentangled hindrance, as a potential block of personal goal attainment, from threat appraisal (Tuckey, Searle, Boyd, Winefield, & Winefield, 2015). Such research could shed light on potential differences in the effects or predictors of hindrance and threat appraisals, and thus help change practitioners to further aid employees' adjustment and positivity at work during turbulent times.

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FOOTNOTES

[1] In the choice for measurement for change appraisals, we used the measurement by Bardi et al. (2009) as it did not include items tapping into emotional-affective states (Skinner & Brewer, 1999). This reinforced the conceptual distinction from work engagement, which reflects an affective state.

[2] Post-hoc analyses of competing measurement models supported the hypothesized three-factor solution. Specifically, an alternative model with a combined challenge and threat factor resulted in statistically significantly worse model fit, $\Delta\chi^2$ (21) = 512.49, $p < .001$. More detailed results can be obtained from the first author.

[3] As employees' perceptions and attitudes towards a merger may depend on one's pre-merger organizational background, in addition for controlling for this effect (see Measures), we examined further the potential role of participants' pre-merger organization for the examined model. These analyses showed that the hypothesized relationships did not differ statistically significantly between the two pre-merger organizations (see supplemental materials).

[4] An additional model comparison analysis showed that the difference between the relationships from threat to engagement and from challenge to engagement across Time 2 to Time 3 were also statistically significant, $\Delta\chi^2(2) = 6.64$, $p = .036$. There were no other statistically significant differences between the relationships neither between engagement-threat vs. engagement challenge, nor between threat-engagement vs. challenge-engagement as the *p*-values of model comparison analyses ranged between $p = .554$ and $p = .936$. These results indicated that work engagement equally mitigated threat and fostered challenge appraisals across the merger, and from Time 1 to Time 2, threat mitigated and challenge fostered work engagement equally, whereas from Time 2 to Time 3 threat was a more robust predictor of engagement.

[5] Results shown in Figure 3 indicated that the occurred changes in the work engagement (e.g., work engagement ΔT1-T2) were more strongly related to changes in the cognitive appraisals (e.g., threat ΔT1-T2) than the prior levels of work engagement (e.g., work engagement T1). These preliminary results were further confirmed by model comparison analyses, which showed that the differences in these engagement-appraisal relationships (i.e., level-to-change vs. change-to-change) were also statistically significant (*p*-values ranging between $p = .001$ and $p < .001$). For appraisal-engagement relationships, such differences were not found. However, across Time 1 to Time 2, changes in challenge indicated slightly stronger relationship to engagement than challenge levels at Time 1, $\Delta\chi^2(1) = 3.33$, $p = .068$. Across Time 2 to Time 3, threat changes were slightly stronger related to engagement changes than threat levels at Time 2, $\Delta\chi^2(1) = 3.68$, $p = .055$.

Table 1

Means, Standard Deviations, Cronbach Alphas, and Zero-Order Correlations

Variable	Scale	*M*	*SD*	1	2	3	4	5	6	7	8	9	12	13	14	15	16
1. Threat (T1)	1–5	2.43	.93	.79													
2. Threat (T2)	1–5	2.61	.94	.54***	.78												
3. Threat (T3)	1–5	2.71	.88	.45***	.57***	.76											
4. Challenge (T1)	1–5	3.14	.86	−.46***	−.29***	−.27***	.76										
5. Challenge (T2)	1–5	3.00	.87	−.31***	−.46***	−.35***	.56***	.80									
6. Challenge (T3)	1–5	3.04	.83	−.26***	−.32***	−.56***	.48***	.56***	.80								
7. Work engagement (T1)	1–7	5.68	1.18	−.27***	−.16***	−.24***	.29***	.22***	.28***	.94							
8. Work engagement (T2)	1–7	5.48	1.29	−.29***	−.38***	−.35***	.29***	.42***	.34***	.64***	.96						
9. Work engagement (T3)	1–7	5.44	1.31	−.26***	−.29***	−.46***	.23***	.34***	.42***	.61***	.74***	.96					
10. Change outcome favorability (T2)[a]	1–7	3.42	1.52	−.20***	−.34***	−.26***	.27***	.42***	.28***	.08	.24***	.17***	—				
11. Change outcome favorability (T3)[a]	1–7	3.53	1.41	−.18***	−.23***	−.32***	.23***	.28***	.42***	.13**	.21***	.29***	.32***	—			
12. Pre-merge organization[b]	0/1	0.43	.50	−.14***	−.09*	.07	.10*	.04	−.03	−.01	−.06	−.11**	.03	−.01	—		
13. Tenure[c]	1–10	5.79	2.89	.03	.04	.10*	−.08*	−.03	−.05	−.09*	−.07	−.07	.02	−.03	.10*	—	
14. Gender[d]	0/1	0.13	.33	.03	−.03	.09*	−.05	−.03	−.12**	−.14**	−.09*	−.15***	.01	−.03	−.10*	−.02	—

Note. N = 623. T1 = Time 1; T2 = Time 2; T3 = Time 3. Alpha coefficients are presented on the diagonal. [a]Change outcome favorability coded as "changes have been 1 = mostly negative, …, 7 = mostly positive. [b]Pre-merge organization coded as 0 = Department of Social Services; 1 = Department of Health Care. [c]Tenure coded as 1 = less than a year, 2 = 1-3 years, 3 = 4-6 years, 4 = 7-9 years, 5 = 10-12 years, 6 = 13-15 years, 7 = 16-18 years, 8 = 19-21 years, 9 = 22-24 years, 10 = 25 years or more. [d]Gender coded as 0 = female, 1 = male.

Table 2

Factor Loadings for the Three-Factor Confirmatory Factor Analysis

Item	Item loadings (T1 / T2 / T3)
Threat appraisal	
1. Many things could go wrong for me as a result of the changes.	.69 / .68 / .62
2. I feel that difficulties could pile up so I might not be able to overcome them.	.78 / .78 / .76
3. There is a good chance that I might not adapt to the changes.	.80 / .75 / .78
Challenge appraisal	
1. I believe that the changes have potential benefits.	.73 / .71 / .73
2. The changes motivate me to increase my efforts.	.64 / .75 / .75
3. In general, I look forward to the rewards and benefits of the changes.	.79 / .80 / .78
Work Engagement	
1. At my work, I feel bursting with energy.	.87 / .88 / .88
2. At my job, I feel strong and vigorous.	.86 / .88 / .88
3. I am enthusiastic about my job.	.91 / .93 / .93
4. My job inspires me.	.88 / .90 / .90
5. When I get up in the morning, I feel like going to work.	.83 / .86 / .84
6. I feel happy when I am working intensely.	.85 / .88 / .88
7. I am proud of the work that I do.	.78 / .81 / .83
8. I am immersed in my work.	.59 / .68 / .72
9. I get carried away when I'm working.	.59 / .68 / .72

Note. $N = 623$. T1 = Time 1; T2 = Time 2; T3 = Time 3. Completely standardized maximum likelihood robust parameter estimates are presented. All estimates are $p < .001$.

Table 3

Tests of Measurement Invariance Over Time

Model	χ^2	*df*	CFI	TLI	RMSEA	SRMR	$\Delta\chi^2$	*p*
Configural[a]	1603.960***	855	.964	.958	.037	.042		
Weak invariance over time[b]	1637.485***	879	.963	.959	.037	.044	32.361	.118
Strong invariance over time[c]	1681.531***	903	.962	.959	.037	.045	43.903	.008
Partial strong invariance over time[d]	1667.648***	900	.963	.959	.037	.045	28.138	.137

Note. $N = 623$. CFI = comparative fit index, TLI = Tucker-Lewis fit index, RMSEA = Root mean square error of approximation, SRMR = standardized root mean square residual. Maximum likelihood robust estimation. Model comparisons were conducted by using Satorra-Bentler chi-square difference test. [a]A model without constraints. [b]A model with item loadings set equal over time. [c]A model with equal item loadings and item intercepts over time. [d]A model with equal item loadings and item intercepts over time, except item intercepts of item 1 of threat appraisal at Time 3 and item 2 of challenge appraisal at Time 3.

*** $p < .001$

Table 4

Means, Standard Deviations, and Zero-Order Correlations of Latent Change Score Factors

	M[a]	*SD*[b]	1	2	3	4	5	6
1. ΔThreat (T1-T2)	.23***	.91***	—					
2. ΔThreat (T2-T3)	.07	.81***	−38***	—				
3. ΔChallenge (T1-T2)	−.19***	.88***	−.56***	.17**	—			
4. ΔChallenge (T2-T3)	.01	.85***	.17**	−.64***	−.40***	—		
5. ΔWork engagement (T1-T2)	−.21***	.89***	−.41***	.13*	.43***	−.19***	—	
6. ΔWork engagement (T2-T3)	−.03	.77***	.12**	−.41***	−.15**	.39***	−.35***	—

Note. N = 623. T1 = Time 1; T2 = Time 2; T3 = Time 3. Maximum likelihood robust estimation. [a]A statistically significant mean estimate indicates that on average, there were within-person changes in the construct. [b]A statistically significant standard deviation indicates between-person variability in the within-person changes.

* $p < .05$

** $p < .01$

*** $p < .001$

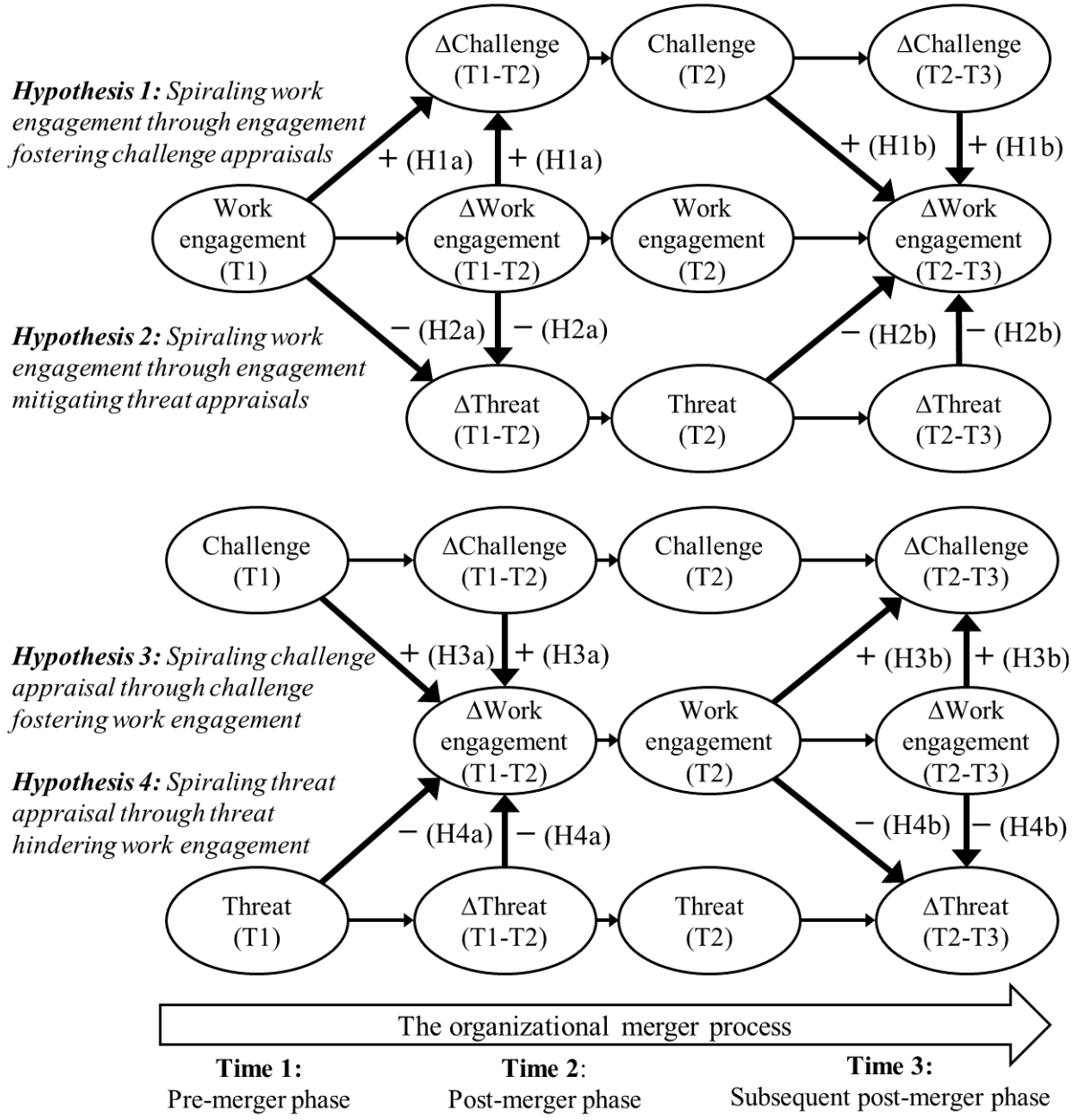

Figure 1. The Hypothesized Model. H = Hypothesis. T1 = Time 1; T2 = Time 2; T3 = Time 3. Hypothesized paths are bolded. Symbol Δ indicates occurred within-person change (i.e., latent change score).

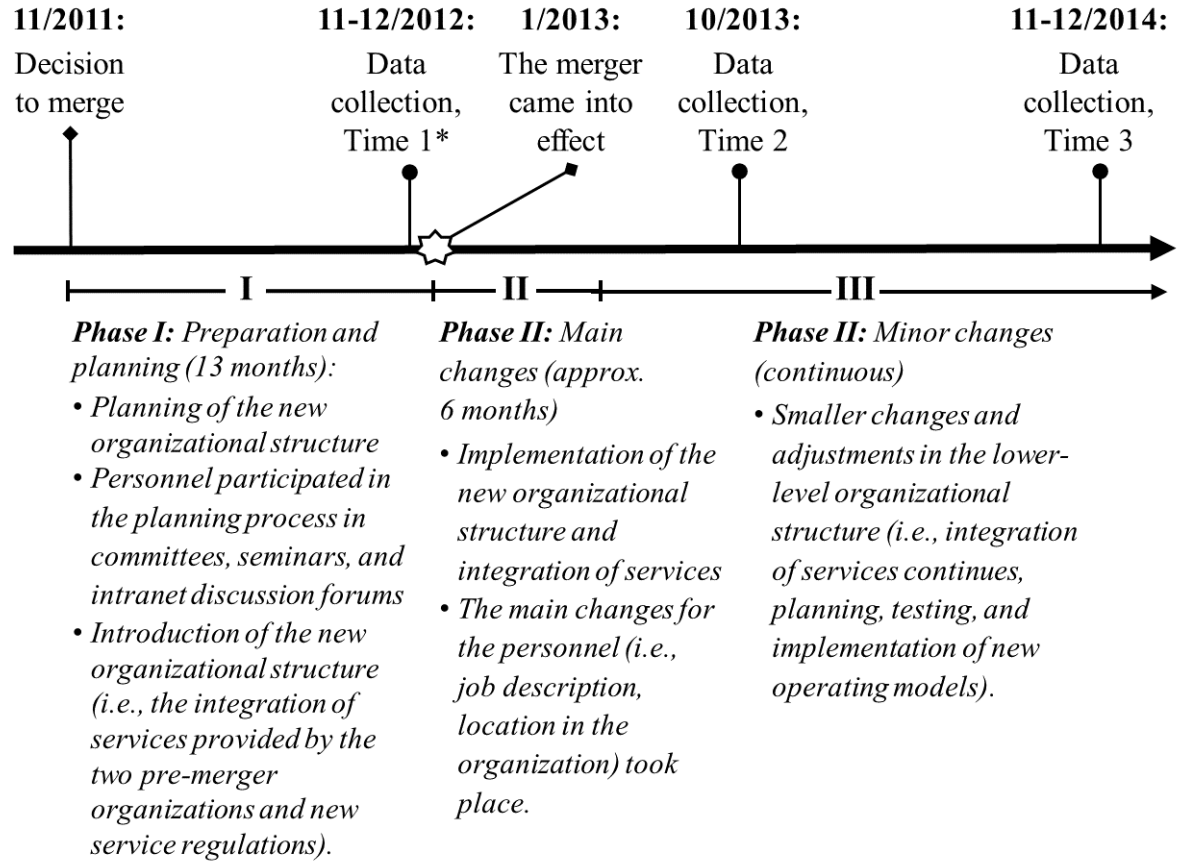

Figure 2. Timeline of the Merger Process and Data Collection.

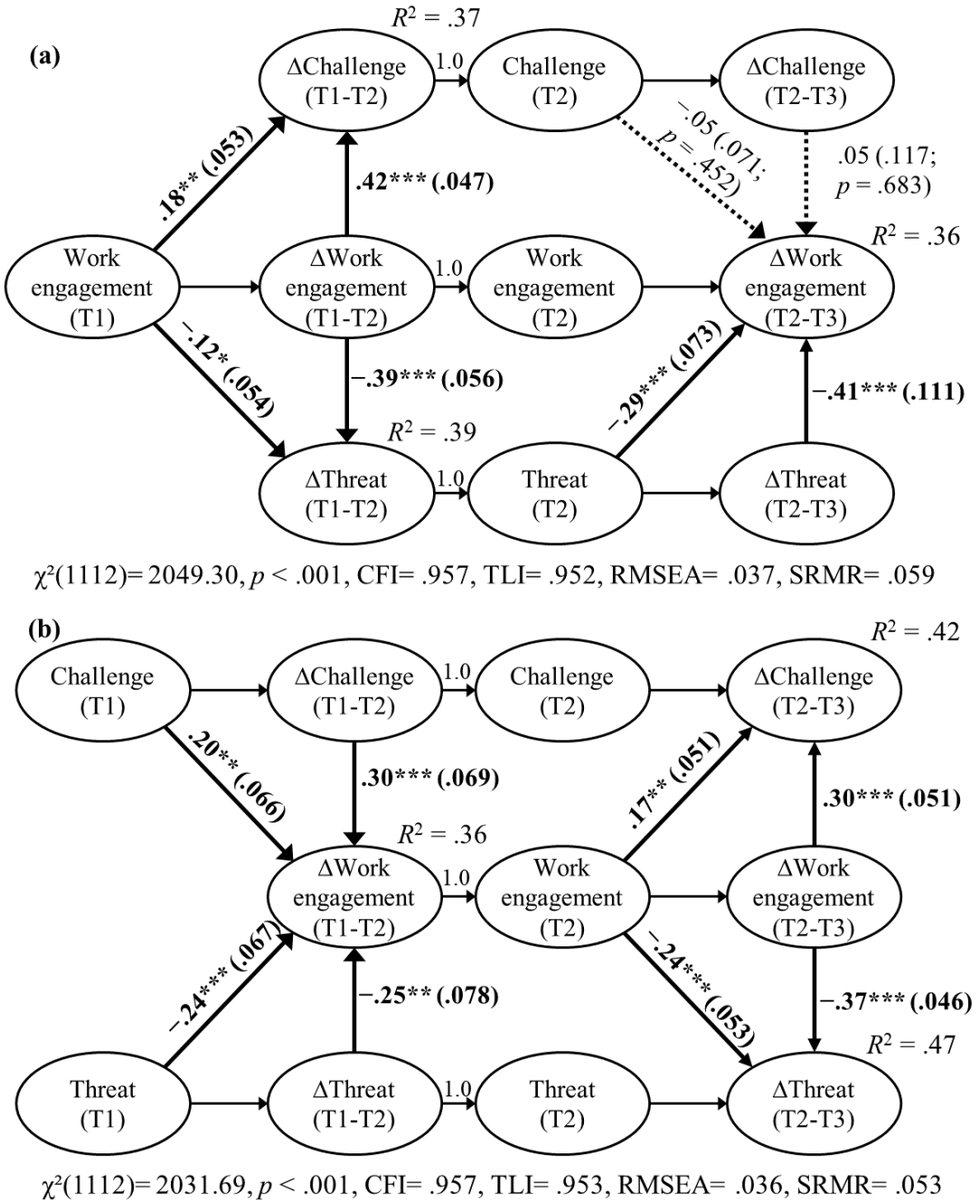

Figure 3. Reciprocal Relationships Between Work Engagement and Challenge and Threat Appraisal Levels and Changes Throughout the Merger Process. *N* = 623. Standardized path estimates with standard deviations in the parentheses are presented. T1 = Time 1; T2 = Time 2; T3 = Time 3. Symbol Δ indicates a latent change score. Paths marked with "1.0" are fixed to 1.0. For clarity, excluded from the figure are control variables (pre-merger organization, gender, tenure, change outcome favorability), Time 1 levels of the dependent latent change scores between Time 1 and Time 2, latent factors' items, autoregressive paths among latent change score variables, and within-time covariances among latent variables. Contact the first author to obtain all numerical estimates of the model in Mplus output format.
* $p < .05$; ** $p < .01$; *** $p < .001$.

APPENDIX A. ATTRITION ANALYSES

We investigated whether participant attrition resulted in nonrandom sampling as recommend by Goodman and Blum (1996). First, we examined whether those who responded at all three time points (N = 623) presented mean differences in the focal variables (i.e., work engagement, threat, and challenge) in comparison to those who participated only at Time 1 (N = 2073). The results of independent sample t-tests indicated that there were no statistically significant mean differences between the two groups (p-values ranging from p = .384 to p = .828). Second, by using logistic regression analysis we tested whether the probability of remaining in the sample could be predicted by the focal variables. The focal constructs measured at Time 1 did not predict whether participant continued to participate in the study (p-values ranging from p = .424 to p = .756). Taken together, the findings from these two analyses did not indicate that the attrition would have resulted in a biased 3-wave sample. To investigate further for possible effects of attrition, we tested our model by using a sample of participants who participated in the study over at least of two of the three time points (N = 1867; see Schafer & Graham, 2002). As the main results did not differ in comparison to the 3-wave sample, these findings provided further support for the notion that our results were not influenced by attrition.

Furthermore, the samples of 3-wave respondents and those responded only at Time 1 were relatively similar in terms of demographics. The average age of 3-wave respondents was around 47.5 years, and those who responded only at Time 1 were on average approximately 45 years old , both samples consisted 88 % of females, and distribution of the participants' position was similar (3-wave sample is given in brackets), with management 5% (7%), supervisors 12% (17%) and employee-level 83% (76%). Finally, Time 1 participants' distribution regarding the pre-merger organization was largely similar, with 49% (56%) from Social Services and 51% (44 %) from Health Care Services.

APPENDIX B. CONSTRUCT ITEMS AND INSTRUCTIONS

Work Engagement

We used a 9-item version of the Utrecht Work Engagement Scale tapping into vigor, dedication, and absorption dimensions (Schaufeli et al., 2006). The items were assessed on a 7-point scale (1 = *never*, 2 = *few times a year*, 3 = *once a month*, 4 = *few times a month*, 5 = *once a week*, 6 = *few times a week*, 7 = *daily*).

1. At my work, I feel bursting with energy.
2. At my job, I feel strong and vigorous.
3. I am enthusiastic about my job.
4. My job inspires me.
5. When I get up in the morning, I feel like going to work.
6. I feel happy when I am working intensely.
7. I am proud of the work that I do.
8. I am immersed in my work.
9. I get carried away when I'm working.

Change Appraisals (Threat and Challenge)

The change appraisals items focused on employees' anticipation of their adjustment and personal outcomes regarding the upcoming changes. Participants were given the following instructions preceding the threat and challenge appraisal items: "The following statements are about your current attitudes regarding the future [merger-related] organizational changes which might affect you." At Time 3, the content in the brackets was excluded and therefore the instructions did not refer to changes specific to the merger event. This decision was based on our discussions with the organization's representatives, which indicated that at Time 3 the employees might not see the upcoming changes (e.g., continuing integration of services and implementation of new operating models) specifically related to the merger process. However, the

measurement invariance test did not indicate that this change in the instruction would have led participants to conceptualize the measurement in a different manner (see Preliminary analyses). The items were measured on a 5-point scale (1 = *completely disagree*, …, 5 = *completely agree*).

Threat appraisal

1. Many things could go wrong for me as a result of the changes.
2. I feel that difficulties could pile up so I might not be able to overcome them.
3. There is a good chance that I might not adapt to the changes.

Challenge appraisal

1. I believe that the changes have potential benefits.
2. The changes motivate me to increase my efforts.
3. In general, I look forward to the rewards and benefits of the changes.

Change outcome favorability

We measured change outcome favorability with the following item: "When you think about all the changes that the founding of (the new organization) has brought about, how would you characterize the changes which have taken place thus far in your own work? Choose the alternative that best describes your opinion. The changes have been 1 = *mostly negative . . .* , 7 = *mostly positive*."